

EDUCATION AND THE TRADES

TO THE EDITOR OF SCIENCE: I was much interested in the letter of Stella V. Kellerman in your issue of November 13, in relation to "Education and the Trades." Her words "Only by teaching honestly what the world needs, and can use, may the schools accomplished their lofty aims" should be taken as a motto by educational leaders and authorities the world over. I should like to ask a question which I hope some day to see answered in SCIENCE:

Suppose a poor man is enabled by close saving to send his son to a high school "to get an education." The boy does not know what he is "going to be," has no ideas of any trade, business or profession, but he wants to be "educated," and is an average student. There may be hidden in this boy a Lincoln, a Carnegie, an Edison or a Rockefeller. He may have it in him to become a book-keeper at \$1,000 a year, or a good mechanic at \$3 a day. No one knows. By the time he gets through high school he may have acquired the ambition to go to college, or he may be tired of school and want to "go to work" at anything that turns up. *This is the average high school boy.*

What should be the high school curriculum for such a boy? If the elective system is in vogue who shall make the election for him, and on what basis or theory shall it be made, so as *not to waste the time* of the boy while he is in the high school? WM. KENT

THE NEW YORK SERIES

TO THE EDITOR OF SCIENCE: In view of the fact that my article on revision of the New York Series¹ is apparently much antedated by Dr. Grabau's paper before the New York Academy,² may I ask space to explain that my manuscript, exactly as printed, was submitted for publication the last of December, 1907, one week before Dr. Grabau's paper was read. A comparison of the two papers will reveal the changes necessary in my table to give proper recognition to the names introduced by Dr.

¹ SCIENCE, No. 715, p. 346, September 11, 1908.

² SCIENCE, No. 694, p. 622, April 17, 1908.

Grabau, which thus acquired priority of publication.

GEORGE H. CHADWICK

SCIENTIFIC BOOKS

A Text-book on Roads and Pavements. By FREDERICK P. SPALDING, Professor of Civil Engineering, University of Missouri, Member American Society of Civil Engineers. Third edition, revised and enlarged. New York, John Wiley & Sons. 1908.

This book was first issued in 1894 while Professor Spalding was connected with Cornell University. A second edition was published in 1903. The many changes in methods of construction and maintenance, due in part to new traffic conditions, has made it necessary for the author to practically rewrite several chapters for this the third edition. In this, as in former editions, the author discusses the principles involved in the construction and maintenance of the various kinds of streets and roads. The first chapter, on road economics and management, contains, among other things, some interesting paragraphs on tractive resistance, in which is given a valuable table showing the relative loads a horse can draw on different kinds of roads and on grades from one to fifteen per cent. This chapter also contains articles on the economic value of better roads, sources of revenue and systems of road management. The second chapter deals with drainage of streets and roads and contains a table showing the proportions and dimensions of materials used in building reinforced concrete culverts of different sizes. This table should be of especial value to highway engineers and road builders. The third chapter relates to the location of country roads, and is treated from an engineering as well as from a practical standpoint. Chapter four, on the improvement and maintenance of country roads contains information on the building of earth roads, the use of the split-log drag, best methods of building gravel, oil, sand-clay and burnt-clay roads, and the advantages of wide tires. Broken-stone roads are considered in chapter five, which contains articles on the macadam and Telford methods of construction, rock for road building, methods for testing materials, main-

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